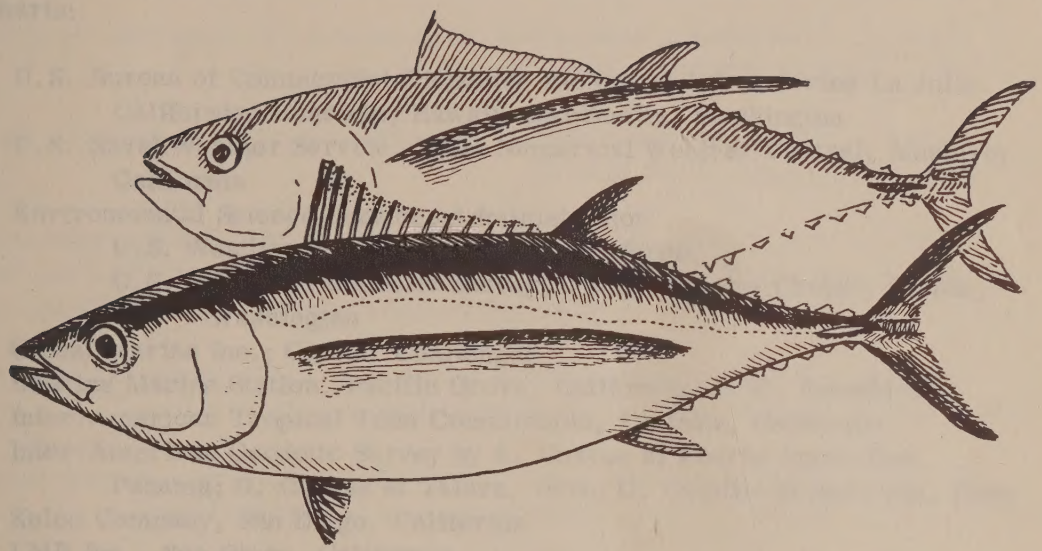
FISHING INFORMATION

MARCH 1970



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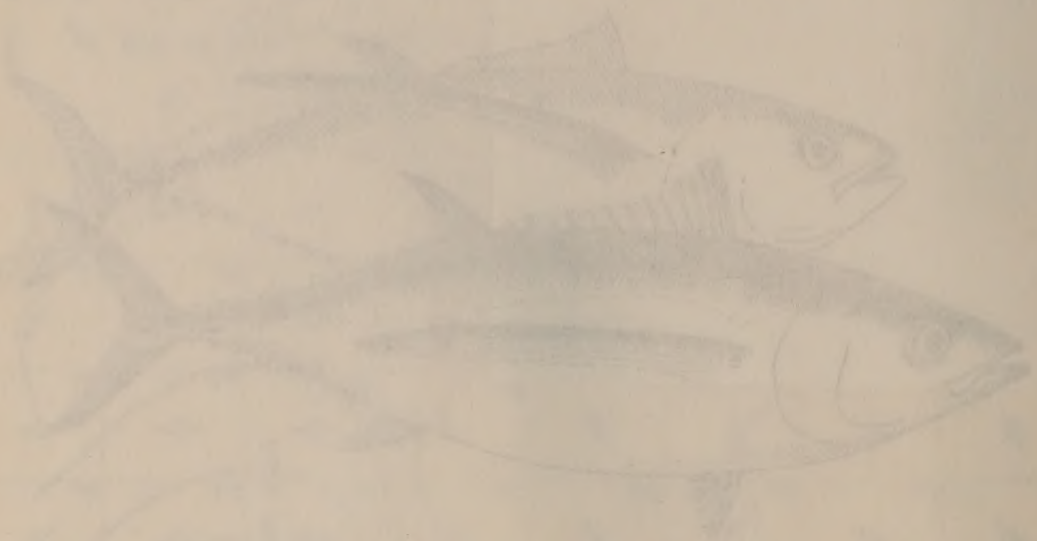
Sea Surface Temperature Charts, Eastern Pacific Ocean, March 1970 1

UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF COMMERCIAL FISHERIES
FISHERY-OCEANOGRAPHY CENTER
LA JOLLA, CALIFORNIA

CALIFORNIA FISHERY MARKET NEWS MONTHLY SUMMARY — PART 2



SEA SURFACE TEMPERATURE CHARTS, EASTERN PACIFIC OCEAN
MARCH 1970

Acknowledgements

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Scripps Institution of Oceanography Research Vessels ALEXANDER AGASSIZ, THOMAS WASHINGTON, ARGO, MELVILLE, ELLEN B. SCRIPPS, OCONOSTOTA, FLIP, ALPHA HELIX
Fishing Vessel MARTINAC

Charts

Figure 1.--Mean sea surface temperature (°F) derived from approximately 8000 observations. Squares show temperatures at weather ship stations. Numerals on shore are temperatures at coastal and lightship stations.

Figure 2.--Deviation of sea surface temperatures (°F) from long term charts of H.O. 225. Hatched areas are colder in 1970.

Figure 3.--Deviation of sea surface temperatures (°F) from those of March 1970. Hatched areas are colder in 1970.

Figure 4.--Sea surface temperatures (°F) by 1-degree squares, approximately 2000 observations. Line under temperatures indicates average of two or more observations. Numerals on shore are temperatures at coastal stations.

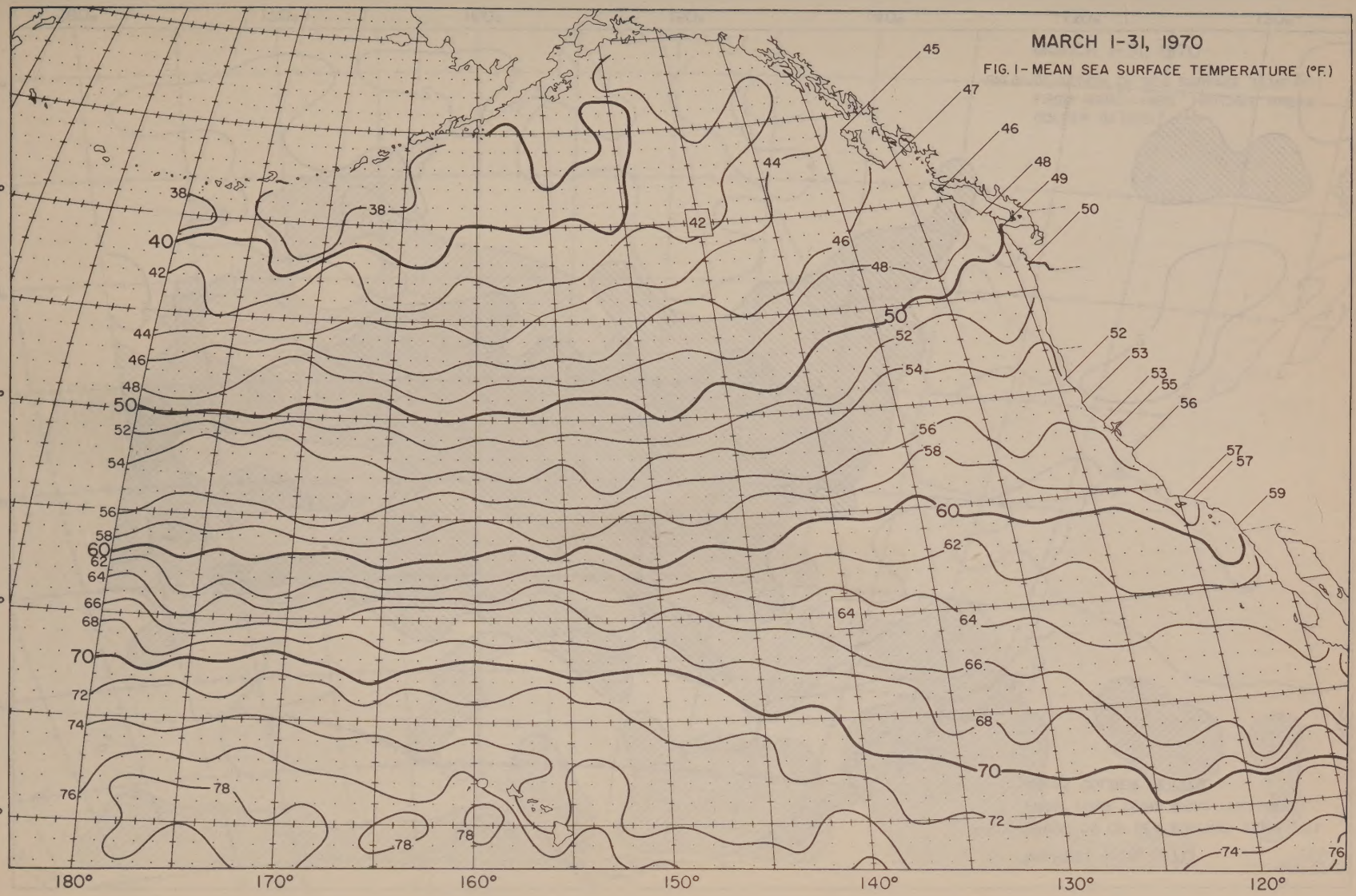
Figure 5.--Deviation of sea surface temperatures (°F) March 1970-March 1969 by 1-degree squares. Shaded areas are colder in 1970.

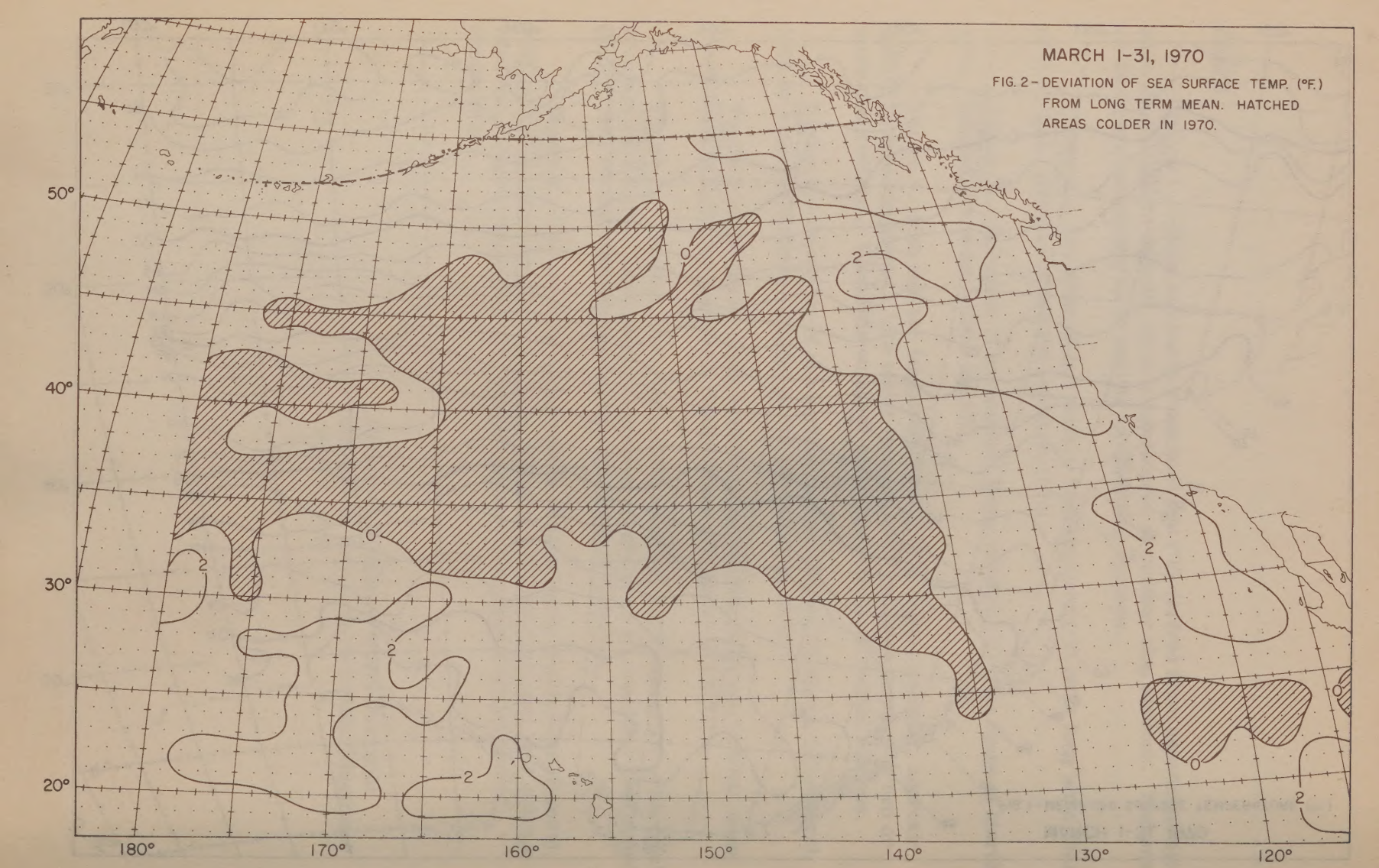
Figure 6.--Deviation of sea surface temperatures (°F) from 12-year mean (1947-1958) by 2-degree squares. Shaded areas are colder in 1970.

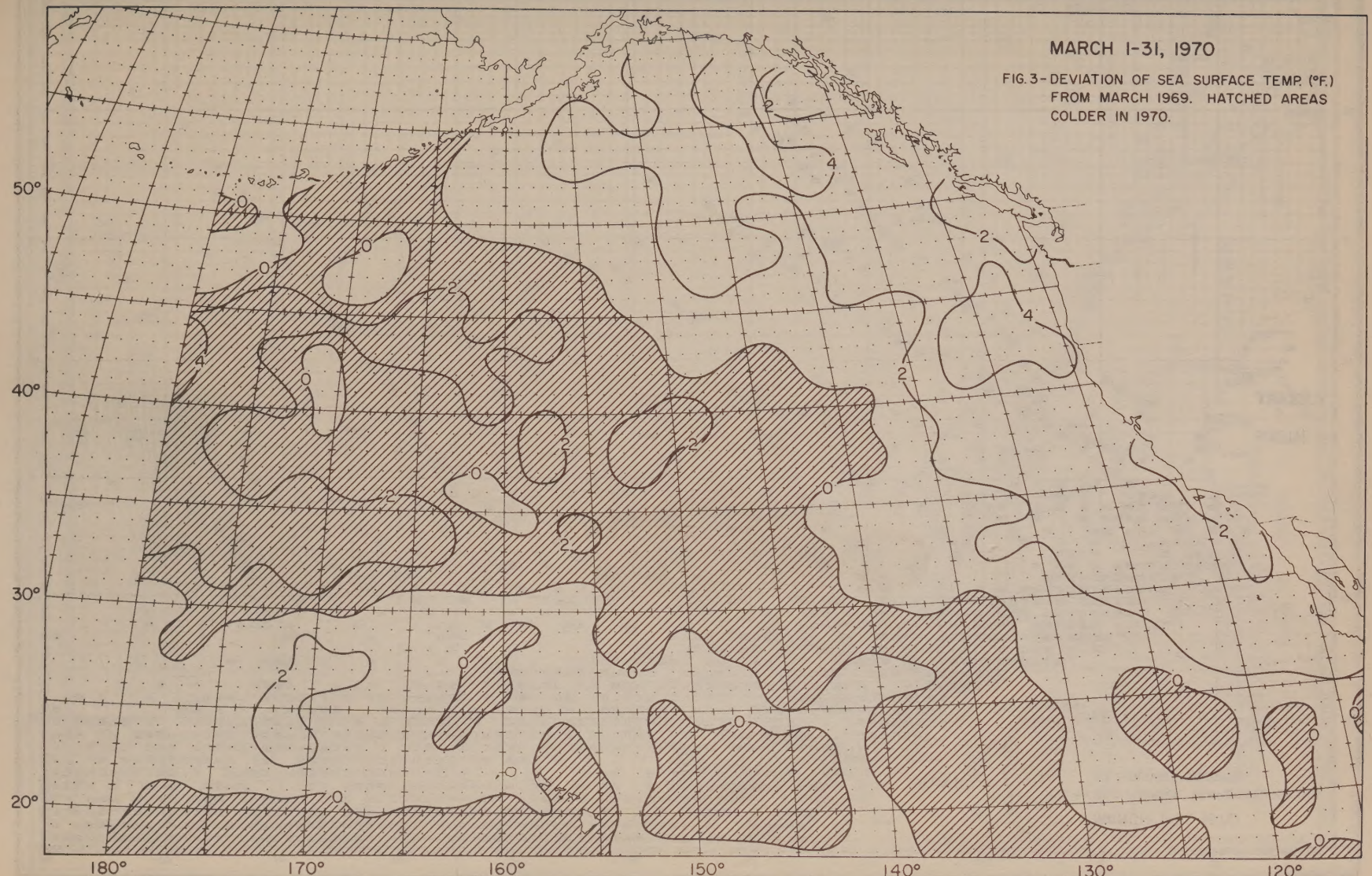
Figure 7.--10-year mean (1961-1970) observed sea level values of barometric pressure (millibars), resultant wind direction (degrees true), resultant wind speed (knots), and average wind speed (knots) regardless of direction.

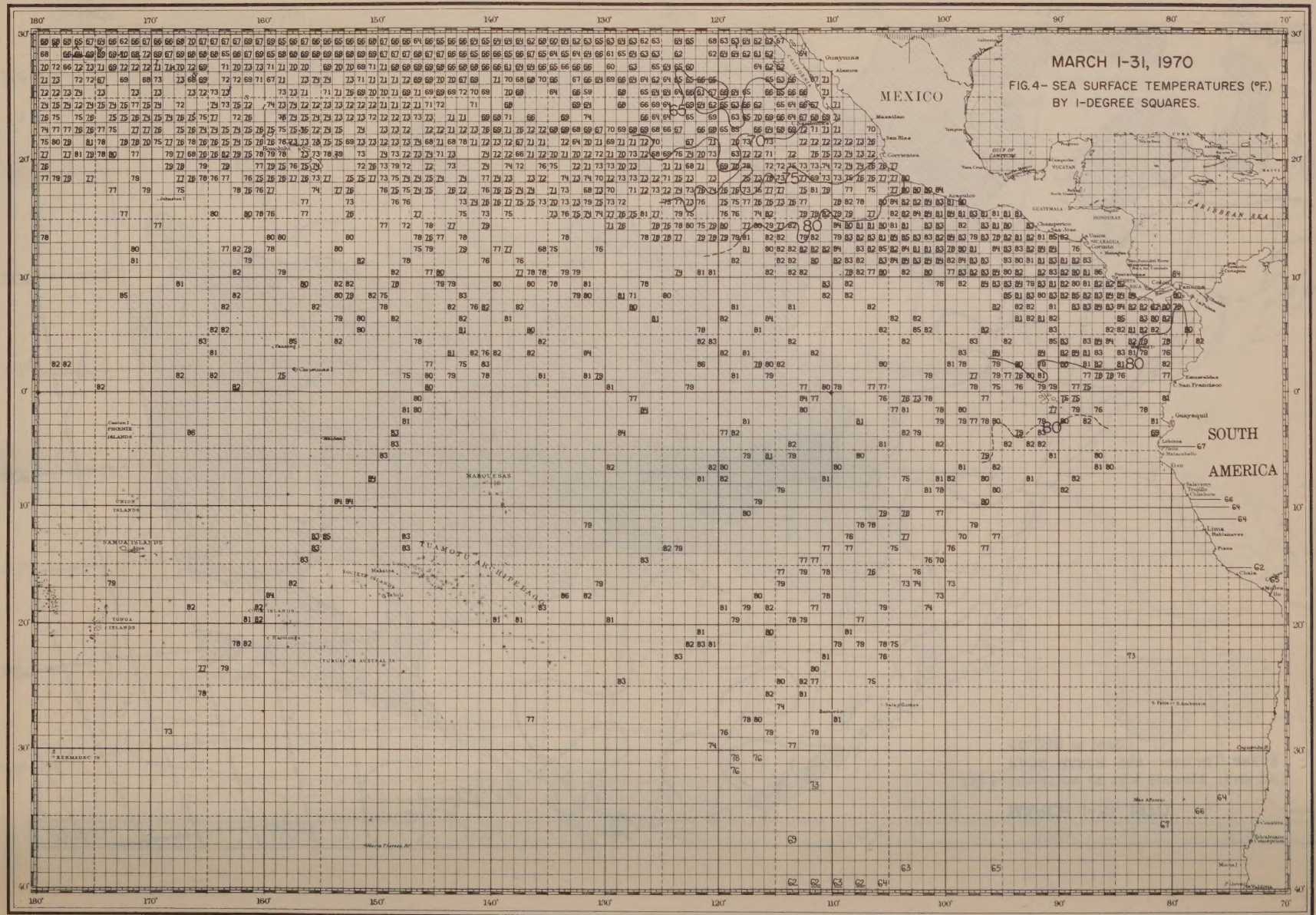
Figure 8.--Observed sea level values of barometric pressure (millibars), resultant wind direction (degrees true), resultant wind speed (knots), and average wind speed (knots) regardless of direction derived from approximately 5000 observations.

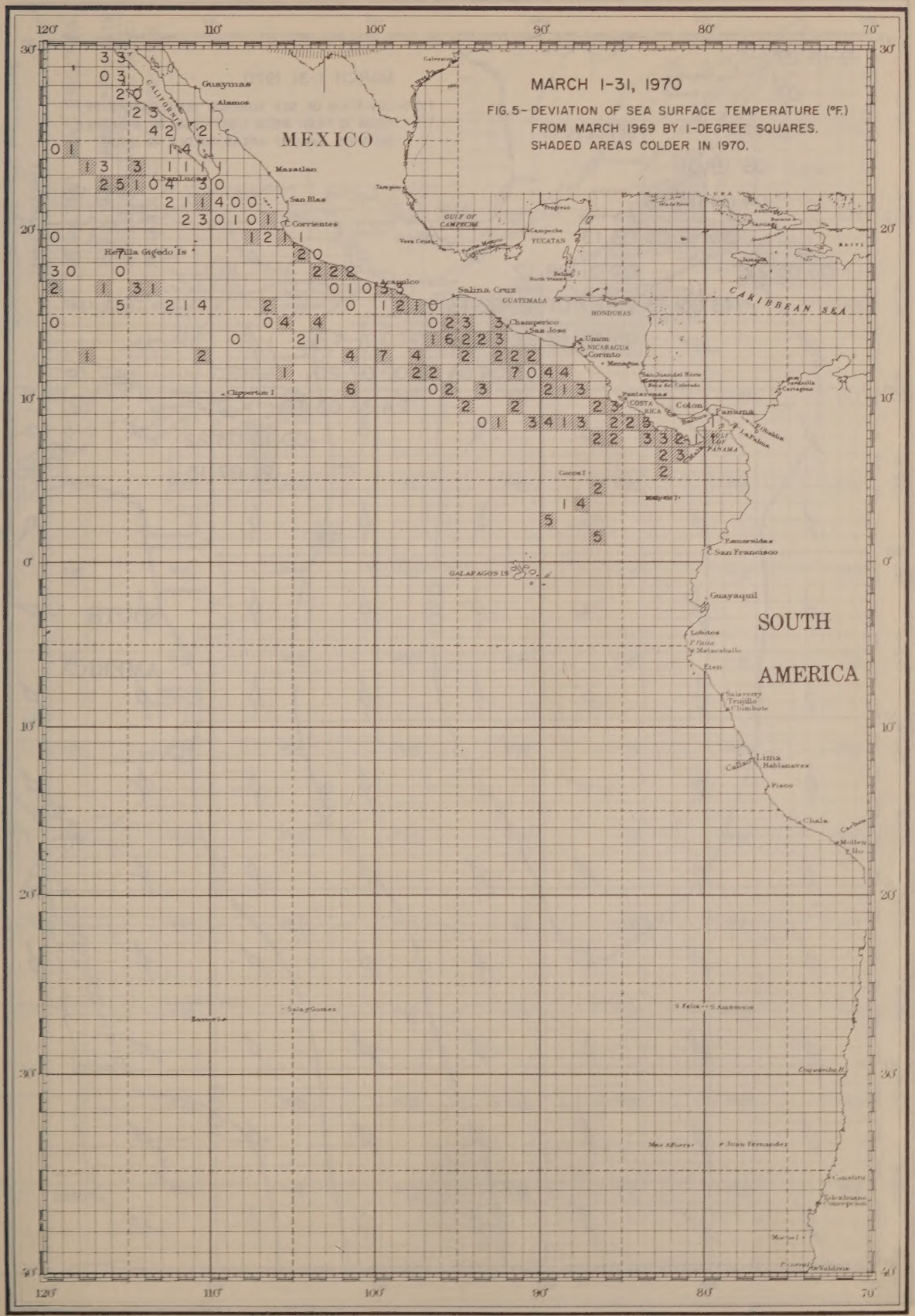
James A. Renner, Fishery Biologist
Kenneth S. Raymond, Scientific Illustrator
April 7, 1970

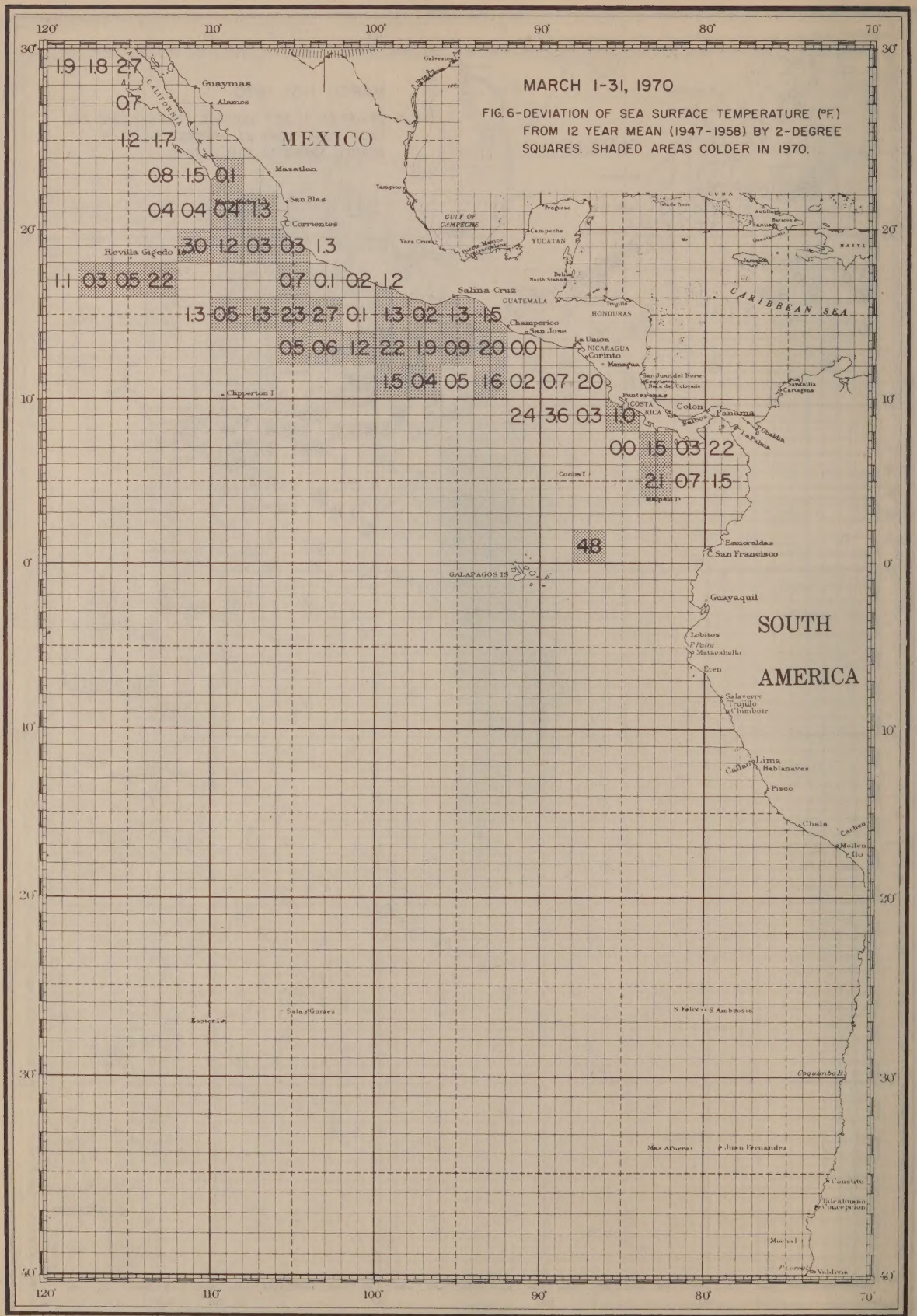

MARCH 1-31, 1970
FIG. 1 - MEAN SEA SURFACE TEMPERATURE (°F.)
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°
38
40
42
44
46
48
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
45
47
46
48
49
50
52
53
53
55
56
57
57
59

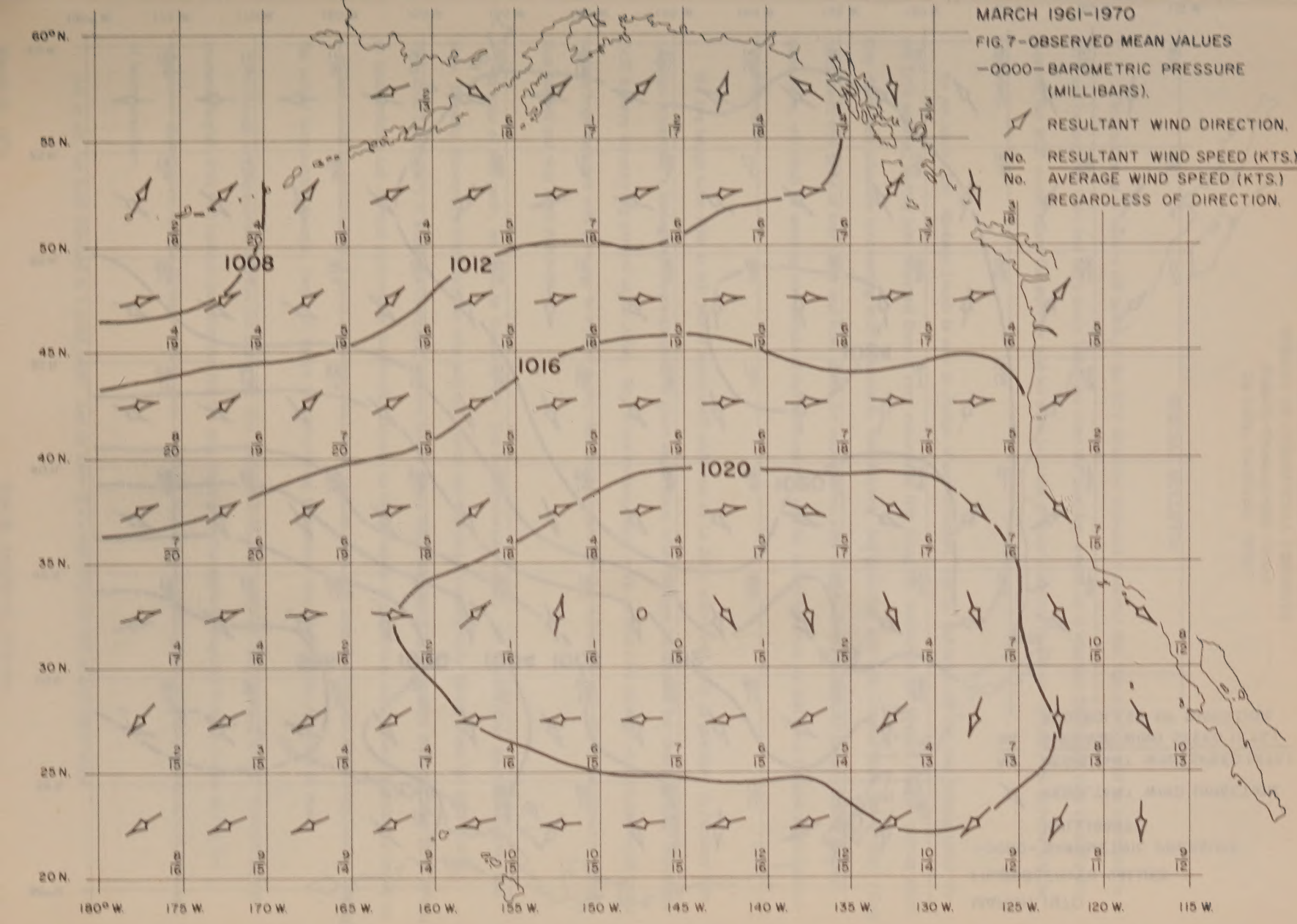

MARCH 1-31, 1970
FIG. 2 - DEVIATION OF SEA SURFACE TEMP. (°F.) FROM LONG TERM MEAN. HATCHED AREAS COLDER IN 1970.
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°
0
2

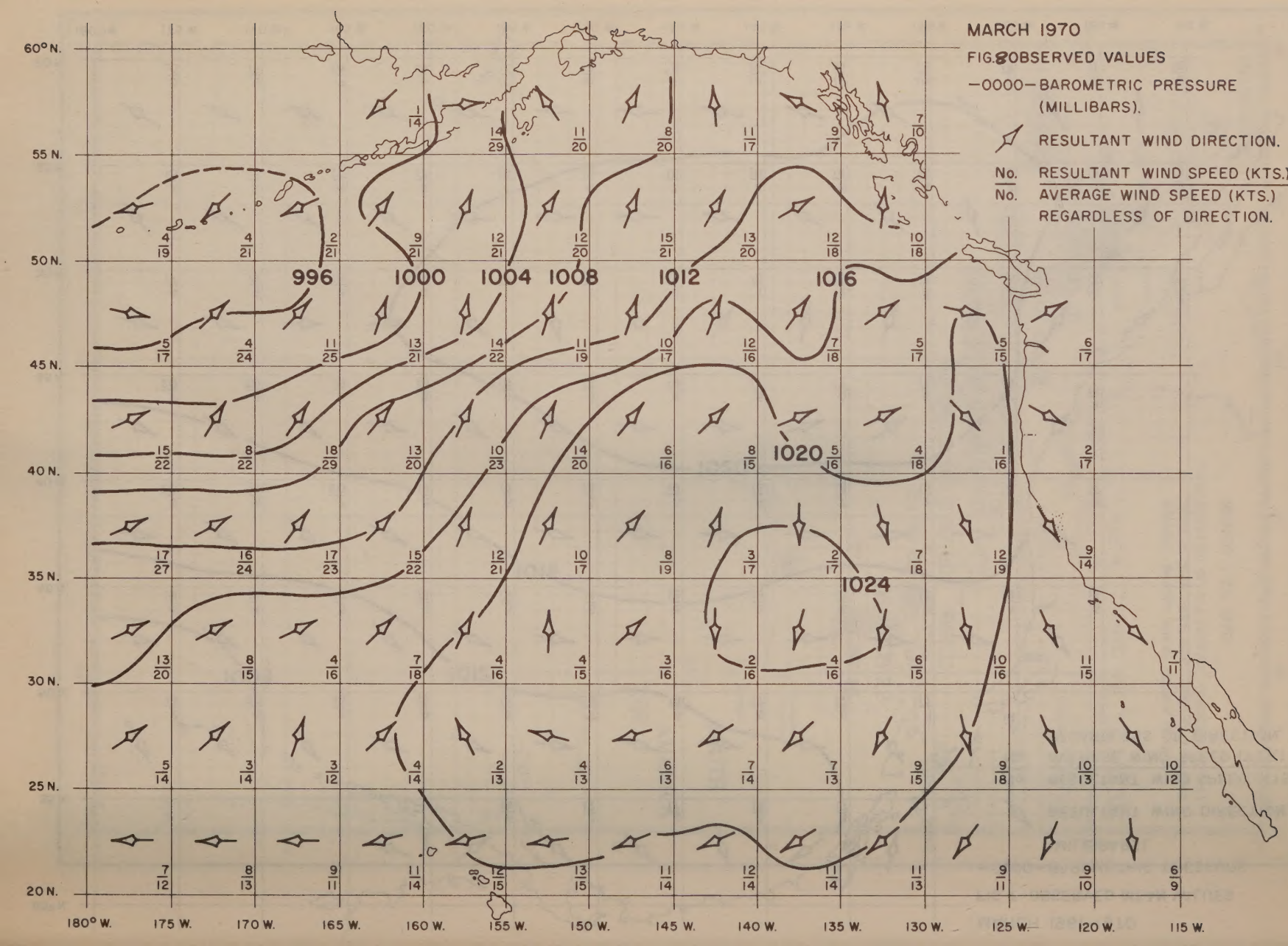

MARCH 1-31, 1970
FIG. 3 - DEVIATION OF SEA SURFACE TEMP. (°F.) FROM MARCH 1969. HATCHED AREAS COLDER IN 1970.
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°


MARCH 1-31, 1970
FIG. 4- SEA SURFACE TEMPERATURES (°F.)
BY 1-DEGREE SQUARES.
MEXICO
SOUTH
AMERICA
TUAMOTU ARCHIPELAGO
MARQUESAS
SAMOA ISLANDS
TONGA
ISLANDS
CHILE
PERU
ECUADOR
GUATEMALA
HONDURAS
CARIBBEAN SEA
GULF OF CALIFORNIA
YUCATAN
CUBA
Acapulco
Guayaquil
Lima
Callao
Valparaiso
San Francisco
Panama
Cristobal
Balboa
Colon
Caracas
Maracaibo
Barranquilla
Cartagena
Tahiti
Papeete
Pitcairn I.
Easter I.
Juan Fernandez Is.
Galapagos Is.
Cocos I.
Clipperton I.
Malpelo I.
Gorgona I.
Gorgonilla I.
Gallo I.
Malpelo
Tumaco
Buenaventura
Esmeraldas
Manzanillo
Mazatlan
Tampico
Veracruz
Progreso
Belize
Puerto Barrios
Amapala
Corinto
Managua
Corinto
Salina Cruz
Acapulco
Manzanillo
Mazatlan
Guaymas
Topolobampo
Mazatlan
San Blas
Corrientes
Manzanillo
Acapulco
Salina Cruz
Puerto Barrios
Belize
Progreso
Veracruz
Tampico


MARCH 1-31, 1970
FIG. 5- DEVIATION OF SEA SURFACE TEMPERATURE (°F.) FROM MARCH 1969 BY 1-DEGREE SQUARES. SHADED AREAS COLDER IN 1970.
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
GUATEMALA
HONDURAS
NICARAGUA
COSTA RICA
PANAMA
GULF OF CAMPECHE
YUCATAN
GULF OF PANAMA
GALAPAGOS IS
Guaymas
Alamos
Mazatlan
San Blas
Corrientes
Acapulco
Salina Cruz
Champerico
San Jose
Corinto
Cocos I
Clipperton I
Socorro I
Guayaquil
Lima
Callao
Pisco
Chala
Salaverry
Trujillo
Chimbote
Esmeraldas
San Francisco
Panama
Colon
Cartagena
Tampico
Progreso
Veracruz
Campeche
Belize
Kingston
Jamaica
HAITI
CUBA
Manzanillo
Santiago
Oaxaca
Tehuantepec
Puerto Angel
Manzanillo
Acapulco
Zihuatanejo
Lazaro
Salina Cruz
Tapachula
Puerto Madero
Corinto
Managua
Puntarenas
Golfito
Coronado
Quepos
Golfo Dulce
Chiriqui
Bocas del Toro
Puerto Limon
Barranquilla
Cartagena
Maracaibo
Aruba
Curacao
Puerto Cabello
La Guaira
Caracas
Barcelona
Trinidad
Margarita I
Cumana
Guiria
Tobago
Port of Spain
Grenada
Barbados
St Vincent
St Lucia
Martinique
Dominica
Guadeloupe
Montserrat
Antigua
St Kitts
Nevis
Virgin Is
Puerto Rico
San Juan
Mona Passage
Dominican Republic
Haiti
Jamaica
Cayman Is
Swan Is
Gulf of Honduras
Belize
Yucatan
Veracruz
Tampico
Progreso
Campeche
Gulf of Mexico
Florida
Cuba
Bahamas
Key West
Miami
Havana
Matanzas
Cienfuegos
Santiago de Cuba
Guantanamo
Port au Prince
Cap Haitien
Kingston
Montego Bay
Negril Pt
Port Antonio
Caribbean Sea
Colombia
Venezuela
Panama
Costa Rica
Nicaragua
Honduras
Guatemala
Mexico
Ecuador
Peru
Chile
Galapagos Is
Cocos I
Clipperton I
Socorro I
Guadalupe I
Revillagigedo Is
Isla de Cedros
Isla Guadalupe
Isla Natividad
Isla San Benito
Isla Cedros
Isla Magdalena
Isla Margarita
Isla Tiburon
Isla Angel de la Guarda
Isla Partida
Isla Espiritu Santo
Isla Cerralvo
Isla Carmen
Isla Coronados
Isla Santa Rosalia
Isla Tortuga
Isla Santa Margarita
Isla Magdalena
Isla Cedros
Isla Natividad
Isla San Benito
Isla Guadalupe
Isla Socorro
Isla Clarion
Isla Roca Partida
Isla Revillagigedo
Isla Isabel
Isla Marias
Isla Tres Marias
Isla Maria Cleofas
Isla Maria Magdalena
Isla Maria Madre
Isla Maria Islands


MARCH 1-31, 1970
FIG. 6-DEVIATION OF SEA SURFACE TEMPERATURE (°F.) FROM 12 YEAR MEAN (1947-1958) BY 2-DEGREE SQUARES. SHADED AREAS COLDER IN 1970.
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
GULF OF CAMPECHE
YUCATAN
GUATEMALA
HONDURAS
NICARAGUA
COSTA RICA
GALAPAGOS IS
Guaymas
Alamos
Mazatlan
San Blas
C. Corrientes
Salina Cruz
Champerico
San Jose
La Union
Corinto
Chipperton I
Cocos I
Esmeraldas
San Francisco
Guayaquil
Lobitos
Eten
Salaverry
Trujillo
Chimbote
Lima
Callao
Pisco
Chala
Mollendo
Ilo
Arica
Iquique
Antofagasta
Coquimbo
Valparaiso
Talcahuano
Concepcion
Valdivia
Juan Fernandez
Mas Afuera
S. Felix
S. Ambrosio
Easter I.
Sala y Gomez
1.9 1.8 2.7
0.7
1.2 1.7
0.8 1.5 0.1
0.4 0.4 0.4 1.3
3.0 1.2 0.3 0.3 1.3
1.1 0.3 0.5 2.2
0.7 0.1 0.2 1.2
1.3 0.5 1.3 2.3 2.7 0.1 1.3 0.2 1.3 1.5
0.5 0.6 1.2 2.2 1.9 0.9 2.0 0.0
1.5 0.4 0.5 1.6 0.2 0.7 2.0
2.4 3.6 0.3 1.0
0.0 1.5 0.3 2.2
2.1 0.7 1.5
4.8


MARCH 1961-1970
FIG. 7 - OBSERVED MEAN VALUES
-0000- BAROMETRIC PRESSURE (MILLIBARS).
RESULTANT WIND DIRECTION.
No. RESULTANT WIND SPEED (KTS.).
No. AVERAGE WIND SPEED (KTS.) REGARDLESS OF DIRECTION.
1008
1012
1016
1020
60° N.
55 N.
50 N.
45 N.
40 N.
35 N.
30 N.
25 N.
20 N.
180° W.
175 W.
170 W.
165 W.
160 W.
155 W.
150 W.
145 W.
140 W.
135 W.
130 W.
125 W.
120 W.
115 W.


MARCH 1970
FIG. 8 OBSERVED VALUES
—0000— BAROMETRIC PRESSURE (MILLIBARS).
RESULTANT WIND DIRECTION.
No. RESULTANT WIND SPEED (KTS.).
No. AVERAGE WIND SPEED (KTS.) REGARDLESS OF DIRECTION.
996
1000
1004
1008
1012
1016
1020
1024
60° N.
55 N.
50 N.
45 N.
40 N.
35 N.
30 N.
25 N.
20 N.
180° W.
175 W.
170 W.
165 W.
160 W.
155 W.
150 W.
145 W.
140 W.
135 W.
130 W.
125 W.
120 W.
115 W.

UNITED STATES DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE
BUREAU OF COMMERCIAL FISHERIES
Fishery-Oceanography Center
La Jolla, California 92037

SPECIAL BULLETIN

This notice is to assure all users of the BCF albacore forecast material that this service will be continued in 1970 and beyond; we have had very many inquiries over the past few weeks as to whether the budget cuts recently announced for BCF would affect the service and we wish to make it clear that this is not so. In fact, the service will be expanded.

As you know, Dr. Michael Laurs is now in charge of our forecast, and he and his staff are now making plans for the 1970 season, having just returned from a very successful trip along the California and Oregon coasts, during which they discussed albacore forecasting with fishermen, fish-buyers and packers, and with Oregon State University. They came back with a lot of new ideas and firm plans for cooperation with Oregon State University in the coming season; quite soon, we shall be sending you details of the forecast you will be receiving from us and from Oregon State University this year.

We are happy to be able to tell you of some staff additions at La Jolla which will help us greatly: in January, Dr. Angeles Alvarino, a biological oceanographer of great experience from Scripps Institution for Oceanography joined the BCF fishery forecasting project at La Jolla. Dr. Alvarino has begun work on albacore biology on a Pacific-wide basis and we hope that this will give us, in a year or so, the ability to predict the abundance and size of the albacore population headed our way each summer.

In June of this year, we shall be joined by Dr. Ted Saur (oceanographer), Mr. Larry Eber (meteorologist), and Mrs. Dorothy Stewart (mathematician) who will be joining our Fishery-Oceanography Group when the BCF Ocean Research Laboratory at Stanford University closes down. They will spend most of their time studying long-term cycles of temperature and current patterns in the Pacific Ocean, as these relate to fisheries; our present forecast is based on a rather crude understanding of these processes and these peoples work will help the forecast along very much. During the actual forecasting season, they will assist in interpreting this ocean data on which the forecast is made.

Although arrangements are not yet final, we also hope to obtain the services this summer of Mr. Forrest Miller (meteorologist) who will initiate our service for the tuna fishery in the eastern tropical Pacific Ocean during the 'chubasco' (hurricane) season during which we hope to assist tuna seiners working far offshore to keep out of the way of heavy weather.

All in all, we look forward to a good year! Let us know if we can help you out in any other ways.

March 20, 1970

Alan R. Longhurst, Director